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SPONGE PRODUCTION AND INTERNATIONAL SPONGE TRADE OF THE UNITED STATES

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Sponges are aquatic animals, the distribution of which is world-wide. They are found in comparatively shallow cold waters, even in the polar seas, although all commercially important sponges grow in warm tropical or semi-tropical waters. At present, sponge fisheries are restricted almost entirely to the Mediterranean Sea, the Caribbean Sea, the Gulf of Mexico, and contiguous waters.

Sponge fishing as an industry was evident as early as several centuries before the Christian era.* It was a particular occupation of the Greeks, and mention of it appears quite frequently in Greek literature. Starting from the eastern part of the Mediterranean, it was spread by the daring and hardy Greek sponge divers of the islands of the Aegean to the north coast of Africa and then to the central Mediterranean. Within recent times, sponge fisheries spread to the coast of Florida and to a lesser degree to other areas along the western Atlantic. American sponge fisheries started about 1840, when a French sponge merchant, ship-wrecked in the Bahamas, noticed the quality of the native sponges and sent a shipment to Paris. Nine years later, New York received its first shipment of sponges from Key West. At that time sponges other than those from the Mediterranean were little known, and this first cargo from Key West narrowly escaped being thrown away as worthless. Their ultimate sale established a market for the newly discovered product. As their quality became better known, the price improved, and an organized sponge fishery developed.

Although the general public is acquainted with sponges because of their household use, they are most significant in the arts and trades. In many trades, they are indispensable. However, because of the growing scarcity and increasing price of natural sponges, the cellulose sponge, developed in the 30's, has been substituted for natural sponges in certain industries and homes. It is believed that this substitution is temporary and that natural sponges will resume their former importance in industrial and home use when they become cheaper and more available. Industrial use of sponges are mainly in the "auto washing trade" and "paint trade," but they are also used in applying a glaze to fine pottery, in the dressing of leather, by jewelers, silversmiths, cane makers, hatters, lithographers, painters, bricklayers, and tilelayers. Sponge clippings, that is, waste from trimming sponges, are used in the United States in the manufacture of roofing paper and in steam pipe insulation.

* Tressler, Donald K., Marine Products of Commerce, Chap. 36, "Commercial Sponges" by H. F. Moore, p. 668, 1923. Reinhold Publishing Corporation, New York.

Methods of fishing vary in different areas, depending on the topography of the beds and the depths fished. The two principal methods are diver boats, power vessels operating with deep-sea divers who detach the sponges from the beds with short-handled hooks, and hooker boats in which the fishermen use hooks attached to long poles, for removing sponges from the beds. A glass bottomed pail, giving an almost clear picture of the water to depths of 50 feet, is used to locate the sponges.

In Florida, the hooker and diver boats are used almost entirely. In Cuba and the Bahamas, hooker boats account for practically the entire production. In the Mediterranean areas, dredges, nude diving, diver boats, and harpoons are the methods used. In 1940, 730 fishermen were employed in the United States sponge fishery, a reduction from 1,123 in 1939.

After sponges are brought to the surface they are exposed to the air and sunlight to destroy the living part, from one to three days, or longer, depending on weather conditions. The sponges are then soaked in stagnant water, either aboard the boats (the usual practice in Florida) or, according to the procedure in the Bahamas, in small ponds, so-called kraals. After being cleaned, the sponges are strung on ropes six feet long, the ends are tied together to form wreaths called "bunches," in which form they are dried and sold at auction to dealers.

In the hands of the dealers, the sponges are trimmed to remove irregularities and torn parts, and gross foreign bodies, such as shells and pieces of coral, are removed. They are then sorted into sizes and grades. Sizes are designated by the number of pieces required to make a pound. In some cases the sponges are bleached and dyed, the dyes being of pastel shades to harmonize with color schemes in the home. Bleaching tends to weaken sponge fibers, so, for the most part, sponges are sold unbleached.

The principal commercial sponges are sheepswool, yellow, velvet, grass, wire, reef, and hardhead, largely from the waters of the United States, Cuba, and the Bahamas, and Turkey cup, Turkey toilet, Zimocca, elephant-ear, and honeycomb or Mandruke, chiefly from the Mediterranean countries. The Turkey cup, Turkey toilet, and minor species of similar texture are marketed in the United States as Mediterranean silk sponges. The West Indian reef sponges and finer grades of hardhead from the same source are marketed as American silk sponges.

The toughness and strength of a sponge are largely determined by the depth of the water in which it grows and whether grown in still water or in water in which there are strong currents. Shallow water produces sponges more tender and of less resiliency than does deep water. To survive the greater pressure of the lower depths, a sponge must develop toughness.

The production of sponges in the United States is confined to a limited area along the West Coast of Florida, but yields a production worth in 1944, more than two and one-half million dollars, or $16.82 per pound. Fluctuations in the annual catch, at least until the middle 30's, were caused mainly by weather conditions, for about the same unmber of vessels were employed in the fishery from year to year.

The best grades of American sponges are obtained by divers who descend in diving suits to depths of 100 feet or more. Sponges in shallower waters are gathered from boats by pronged hooks on the ends of long poles. The use of drag

nets does a great deal of harm to the sponge beds because it uproots small sponges as well as those of marketable size, and is therefore not permitted in the Florida sponge fishery. (cf. Fishery Leaflet No. 4, August 1945).

Preferences as to both use and price of sponges are influenced by certain intrinsic differences, such as size, shape, softness, firmness, durability, resiliency, absorptiveness, and color. Sponges are sold in bunches or by piece, and Maximum Price Regulations are based on bunches containing so many pieces.

According to statistics of production, the marked decrease in the catch of sponges appears to have been subsequent to 1936 (cf. Table 1 and Figure 1). Reduced supplies around Key West were not sufficient to materially affect the total catch in Florida, as the principal fishery, at least for a great many years, has been Tarpon Springs. Prices of better grades of sponge increased 50 to 75 percent in the year preceding March 1942, at which date they were frozen at their top levels for the month (cf. Figure 1-A). As an illustration of the "feast or famine" swing in the sponge industry, sponge trimmings ten years ago brought fishermen 50 cents per 100 pounds--when they could be sold. The current market for sponge trimmings is 50 cents per pound. Wartime restrictions* on operations of the sponge fishing fleet off the Florida coast caused the Office of Price Administration to authorize increases of from 12 to 14 percent in maximum prices for sponges at the packer level. As of April 1943, very few sponges were moving in the civilian markets; most of them were going instead to the armed forces or to industries serving a variety of wartime purposes. This increasing demand in face of decreasing supplies of both domestic and foreign sponges is responsible for the tremendous increase in unit values from $1.68 per pound in 1939, to $8.65 per pound in 1943 (Figure 1-B). Total available supplies of sponges from both of these sources steadily declined from 976,000 pounds in 1939 to 395,000 pounds in 1943 (cf. Table 2 and Figure 2).

Most sponges of domestic production are sold at auction on the exchange at Tarpon Springs, Florida, whose membership is made up of twenty-five producers and dealers, and the entire sponge production of the United States is taken off the coast of Florida. In terms of value the United States leads the world in sponge production, while Cuba supplies the greatest quantity. Second in production are the Bahamas, while Libya, Greece, Italy, Egypt, and Turkey are other important producing countries. New York City is the principal market for both domestic and imported sponges. Similar species and grades used for the same purposes sell at approximately the same prices.

Sheepswool sponges constitute the greatest percentage of United States production in quantity and value, followed by grass and yellow. Cuba is the principal competing country for sheepswool, yellow, and grass sponges.

United States sponge imports, like production, have decreased steadily in recent years from 582,000 pounds in 1938 to 124,000 pounds in 1944 (cf. Table 3 and Figure 3). In 1939 and 1940, an increase was noted, but a sharp decline followed in 1941. The value has tended to increase steadily due to decreased supply and continued demand but is still 20 percent below the 1929 high when the

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* Naval restrictions on offshore operations circumscribed the areas fished by boats using diving equipment and compelled fishing craft to return to port each night. This shortened trips and increased costs.

United States imported sponges valued at $1,183,055. The decline, which began in 1930, was due in large part to the destruction by hurricanes of about half of the supply in the Bahaman waters and the depletion by excessive fishing of Cuban beds. Some measure of recovery was noted after 1933, but in 1939, a blight attacked the Bahaman and Cuban beds in addition to those in Florida. The velvet sponges in the Bahamas were almost completely destroyed, and after 1939, the Bahama Islands ceased to rank as the principal competing country for this product, and so far there are no signs of recovery. The effect of the blight was also reflected in Cuban exports in 1941. Since then, the Florida beds have partly recovered and the Cuban beds have shown some improvement.

Sheepswool sponges account for almost 50 percent of the total value and 25 percent of the total quantity of this trade. Cuba and the West Indies--Bahama Islands--are the chief source of our imports, and the wartime decline from these countries is almost entirely the result of the blight of 1939. When the war cut off the European markets, virtually all exports from Cuba and the Bahamas were shipped to the United States. In 1943-1944, these imports were less than one-half of the imports during the prewar years, but the value was more than double. In 1944, 95 percent of the total value and quantity of our imports came from Cuba; the Bahamas were second with about 1-1/2 percent. Total imports were 123,581 pounds valued at $944,459, or $7.64 per pound (cf. Table 3 and Figure 4). This was an excess of only 95,823 pounds over our exports for 1944 (cf. Table 4).

To protect the growing American sponge industry, a tariff was established which applied to all countries except Cuba, which has a 20 percent preferential on all products. The Tariff Act of 1913 (Par. 68) provided rates of duty at 10 or 15 percent ad valorem on all types of sponges imported. Sponges, trimmed or untrimmed, but not further advanced in value by chemical processes, were dutiable at 10 percent ad valorem; bleached sponges and sponges advanced in value by processes involving chemical operation, 15 percent. In the Tariff Act of 1922 (Par. 1447) a rate of 15 percent ad valorem was set on all types of sponges and 25 percent on manufactures of sponges.

The Tariff Act of 1930 (Par. 1545) provides: "Sponges, commercially known as sheepswool, 30 per centum ad valorem; sponges, commercially known as yellow, grass, or velvet, 25 per centum ad valorem; all other sponges, not specially provided for, 15 per centum ad valorem; manufactures of sponges, or of which sponge is the component material of chief value, not specially provided for, 25 per centum ad valorem." Under a decision of the Customs Court (Abs. No. 21073) July 28, 1932, sponge clippings were held entitled to free duty under Par. 1750 of the Tariff Act of 1930, as paper stock rather than dutiable at 10 percent as waste.

By Presidential Proclamation effective September 18, 1932, under Section 336 of the Tariff Act of 1930, the duty on sheepswool sponges was reduced to 22-1/2 percent.

In September 1934, a trade agreement between the United States and Cuba provided for a reduction in the rate of duty on velvet sponges from 20 percent (the preferential rate for Cuba) to 12 percent, and the rate of duty on sponges not specially provided for was reduced from 12 percent (the preferential rate for Cuba) to 6 percent. The latter included hardhead, reef, and all other.

In a trade agreement with the United Kingdom (including the Bahamas), effective January 1, 1939, rates of duty on yellow, grass, and velvet sponges were reduced from 25 percent to 15 percent and on hardhead and reef, from 15 percent to 7-1/2 percent.

In view of the probability that available supplies of sponges will continue to be considerably short of the demand, a further change in duties is unlikely to affect materially either the quantity of production or of imports or the unit value of domestic production and the foreign unit value of imports. The quantity of production and imports will depend almost entirely on the availability of supplies.

United States exports of sponges go principally to European countries, Canada, and Argentina. In 1934, 82,661 pounds were exported, valued at $93,143, but since then they have declined considerably. According to official statistics, there were no exports of domestic sponges in 1938 or 1939. In 1940, export trade of natural and synthetic sponges revived, but has steadily declined in value. Volume statistics were not available until 1943, and by 1944, the quantity had almost doubled to 27,758 pounds, valued at $91,708. However, data are not available showing what proportion of these exports subsequent to 1939 were natural sponges.

Exports consist mostly of small pieces, 16 pounds or less, suitable for the bath and for general use. The demand is almost equally divided in quantity between the lower grades of sheepswool and the better grades of yellow, grass, and wire sponges.

Formerly an important item in the sponge trade, during 1930, re-exports of foreign sponges declined sharply. The loss of this business is due primarily to direct transactions between foreign importers and Cuban and Bahaman producers and dealers.

While demand will be higher the next three years, consumption of sponges will probably continue at about the same level, depending almost entirely upon the availability of supplies. The unit values will continue high. Domestic production will probably continue to supply slightly more than one-half of the consumption in quantity. A large majority of the sponges in the beds which suffered from the blight of 1939 will still be young growths of unmarketable size. In order to conserve breeding stocks, it is likely that limitations may be placed upon the catch of mature sponges of market size by the States concerned.

At present, commercial sponge resources of the United States are protected both by an Act of the Congress of the United States and by the laws of the State of Florida. The Act of Congress (Public No. 172, approved August 15, 1914; 38 Stat. 6921) prohibits the capture in waters of the Gulf of Mexico and the Straits of Florida, outside of the limits of territirial jurisdiction, of sponges measuring less than five inches in diameter when wet. This Act also forbids the landing, curing, possession, or sale of sponges less than that size and provides penalties for violation. The laws of Florida (Chapter K, Art. 27, Sec. 8084) contain substantially the same prohibitions with respect to catching and marketing sponges within the territorial limits of the State. A State law also provides that hooks used in removing sponges from the bottom shall be five inches wide and prohibits the use of diving equipment for taking sponges within the territorial limits of the State. In accordance with the Constitution of Florida, State jurisdiction on the West Coast extends three leagues (nine miles) from shore.

An Executive Order was issued by the President of the United States on September 28, 1945, regarding boundaries of territorial jurisdiction of the United States. It is a statement of policy; how far the present jurisdiction has been changed or extended is not yet known.

Table 1.--Total United States Sponge Production (1934 - 1944).

Year	Total Pounds	Total Value	Average Unit Price per Pound
1934	655,000	$ 837,000	$ 1.28
1935	655,000	838,000	1.28
1936	739,939	1,105,000	1.49
1937	631,000	1,220,000	1.93
1938	606,000	1,071,000	1.77
1939	484,000	1,162,000	2.40
1940	243,000	888,000	3.65
1941 1/	231,179	1,483,554	6.42
1942 1/	211,816	1,848,095	8.72
1943 1/	200,161	2,505,521	12.52
1944 1/	164,724	2,771,590	16.82

1/ Total United States production figures for these years are not available. Sales of sponges on the Tarpon Springs Exchange in Florida were available, and an estimate of the total production was made by using an average ratio of total production to sales on the Exchange and projecting it to the four years.

Table 2.--Total Available Supplies of Sponges in the United States from Production and Imports (1934 - 1944).

Year	Total Pounds	Total Value	Unit Value in dollars per Pound
1934	1,134,307	$ 1,224,730	$ 1.08
1935	1,268,143	1,302,211	1.03
1936	1,345,622	1,666,738	1.24
1937	1,212,906	1,807,620	1.49
1938	1,034,664	1,546,238	1.49
1939	975,536	1,638,035	1.68
1940	762,041	1,476,763	1.94
1941	453,296	2,001,661	4.42
1942	329,344	2,461,105	7.47
1943	394,942	3,414,726	8.65
1944	288,305	3,716,049	12.89

Table 3.-- Total United States Imports of All Sponges (1934 - 1944)

Year	Total Pounds	Total Value	Average Unit Price per Pound
1934	479,307	$ 387,730	$ 0.81
1935	613,143	464,211	0.76
1936	605,683	561,738	0.93
1937	581,906	587,620	1.01
1938	428,664	475,238	1.11
1939	431,536	476,035	0.97
1940	519,041	588,763	1.13
1941	222,117	518,107	2.33
1942	117,528	613,010	5.22
1943	194,781	909,205	4.67
1944	123,581	944,459	7.64

Source: Foreign Commerce and Navigation of the United States - 1934-1944.

Table 3-A.--Total United States Imports from Cuba and the British West Indies.

Year	Cuba		British West Indies (Bahamas)		Other Countries	
	Total Pounds	Imports Value	Pounds	Imports Value	Total Pounds	Imports Value
1934	309,502	$262,813	134,779	$ 55,864	35,026	$ 69,053
1935	389,167	313,357	192,306	65,583	31,670	85,271
1936	363,680	387,073	189,973	97,039	52,030	77,626
1937	315,922	363,698	227,056	133,632	38,928	90,290
1938	271,466	343,783	141,195	68,639	16,003	62,816
1939	277,124	288,242	187,783	119,105	26,629	68,688
1940	464,589	503,681	38,998	40,351	15,454	44,731
1941	185,636	443,096	21,662	19,244	14,819	55,767
1942	101,317	569,620	9,481	17,562	6,730	25,828
1943	191,636	803,615	572	3,038	2,573	102,552
1944	118,076	899,629	2,649	14,652	2,856	30,178

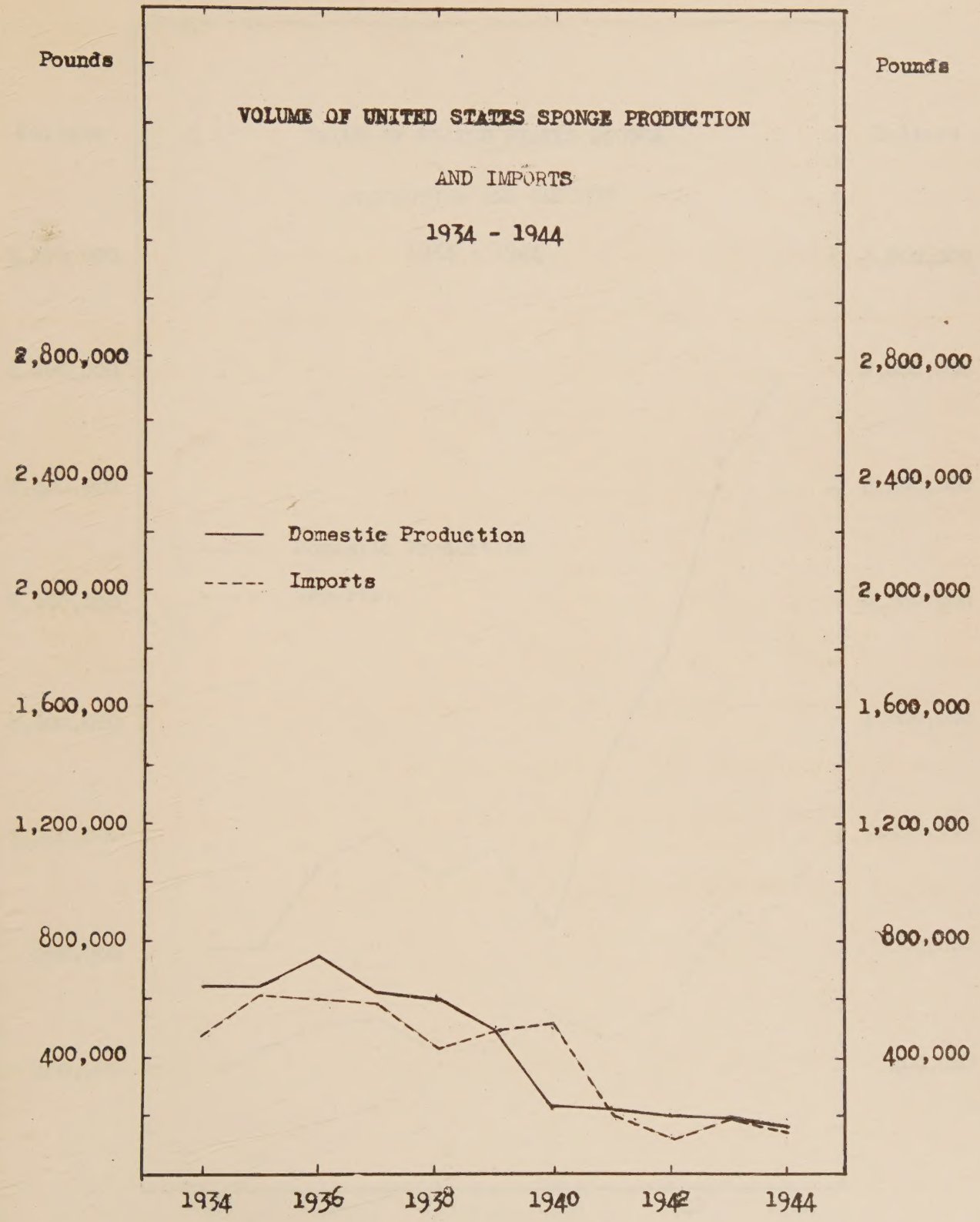
Table 4.--United States Sponge Imports and Exports with Import Excess (1934-1944)

Year	Imports		Exports		Import Excess	
	Pounds	Value	Pounds	Value	Pounds	Value
1934	479,307	$387,730	82,661	$93,143	396,646	$ 294,587
1935	613,143	464,211	78,465	88,706	534,678	375,505
1936	605,683	561,738	53,897	66,055	551,786	495,683
1937	581,906	587,620	54,686	72,603	527,220	515,017
1938	428,664	475,238	1/	1/	-	-
1939	491,536	476,035	1/	1/	-	-
1940	519,041	588,763	2/3/	46,213	-	542,550
1941	222,117	518,107	2/3/	109,763	-	408,344
1942	117,528	613,010	2/3/	74,854	-	538,156
1943	194,781	909,205	14,8613/	52,030	179,920	857,175
1944	123,581	944,459	27,7583/	91,708	95,823	852,751

1/ No sponge exports for 1938 and 1939 were recorded.

2/ No records were available for number of pounds of sponges exported; only value was given for 1940, 1941, and 1942.

3/ Include indeterminate quantities of synthetic sponges.



Source: Sponge Production and International Sponge Trade of the United States

F.W.S. Fig. 1

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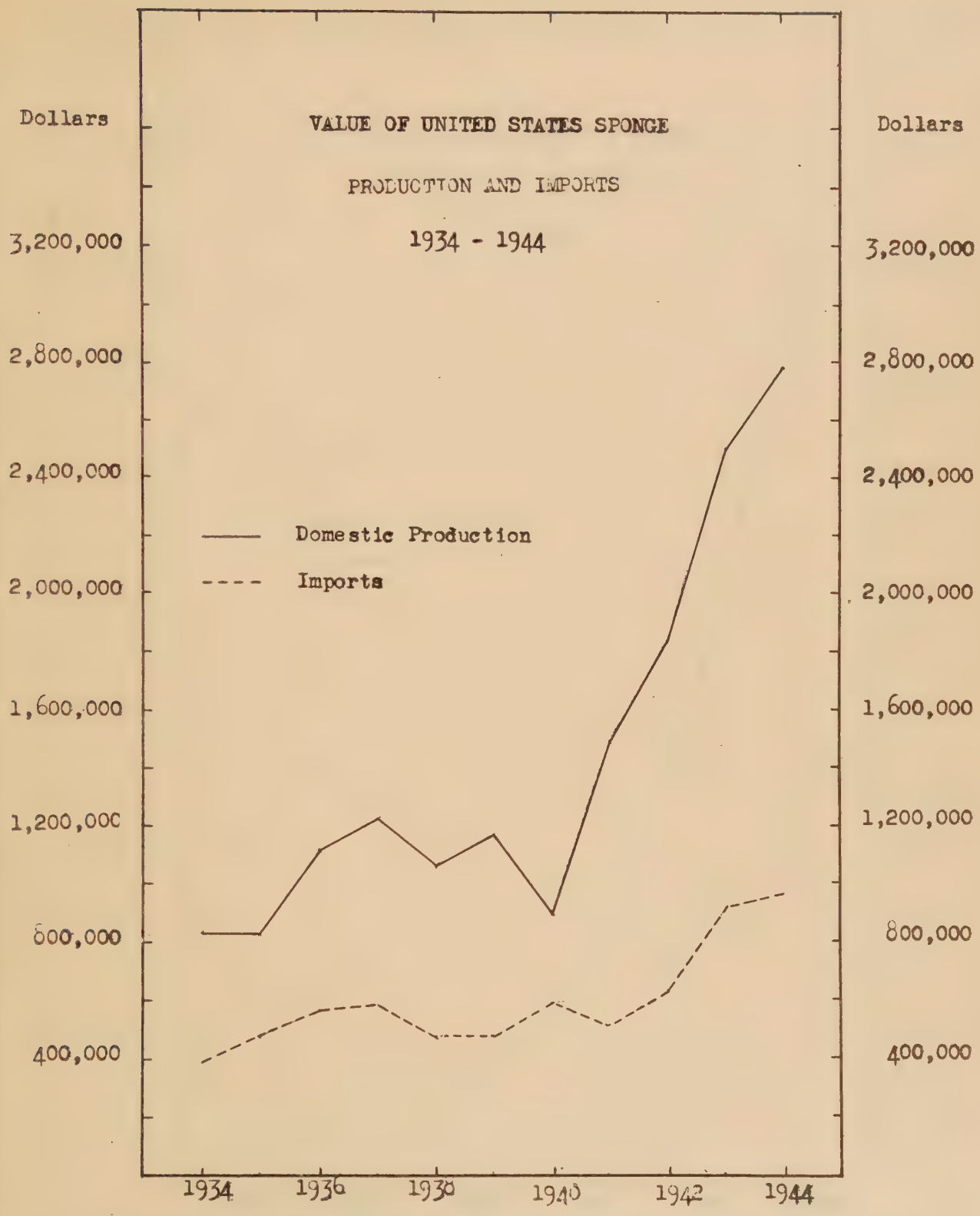

Source: Sponge Production and International Sponge Trade of the United States.

F.W.S. Fig. 1 - A

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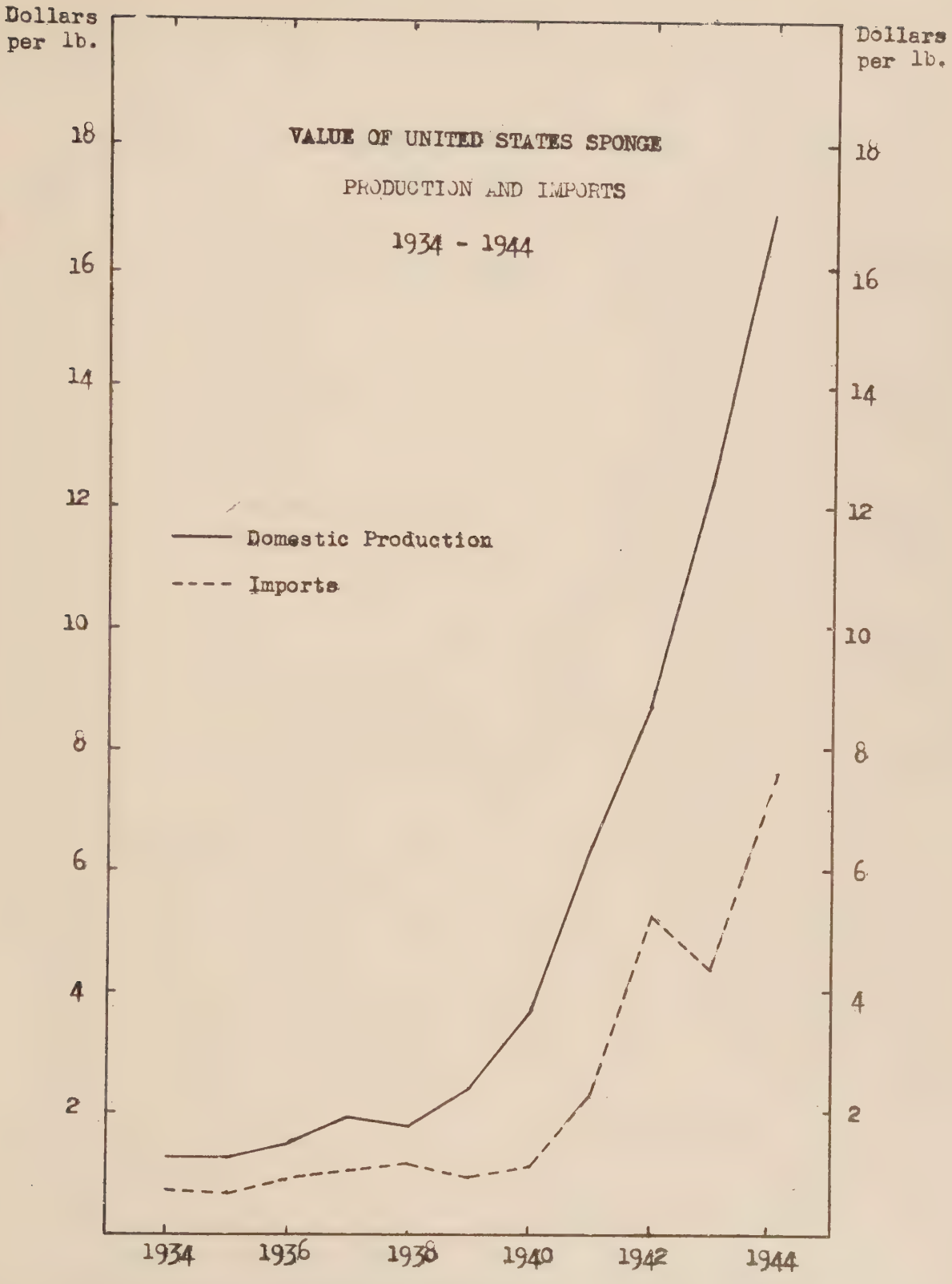

Sources: Foreign Commerce and Navigation of the United States, Sponge Production and International Sponge Trade of the United States.

F.W.S. Fig.1-B

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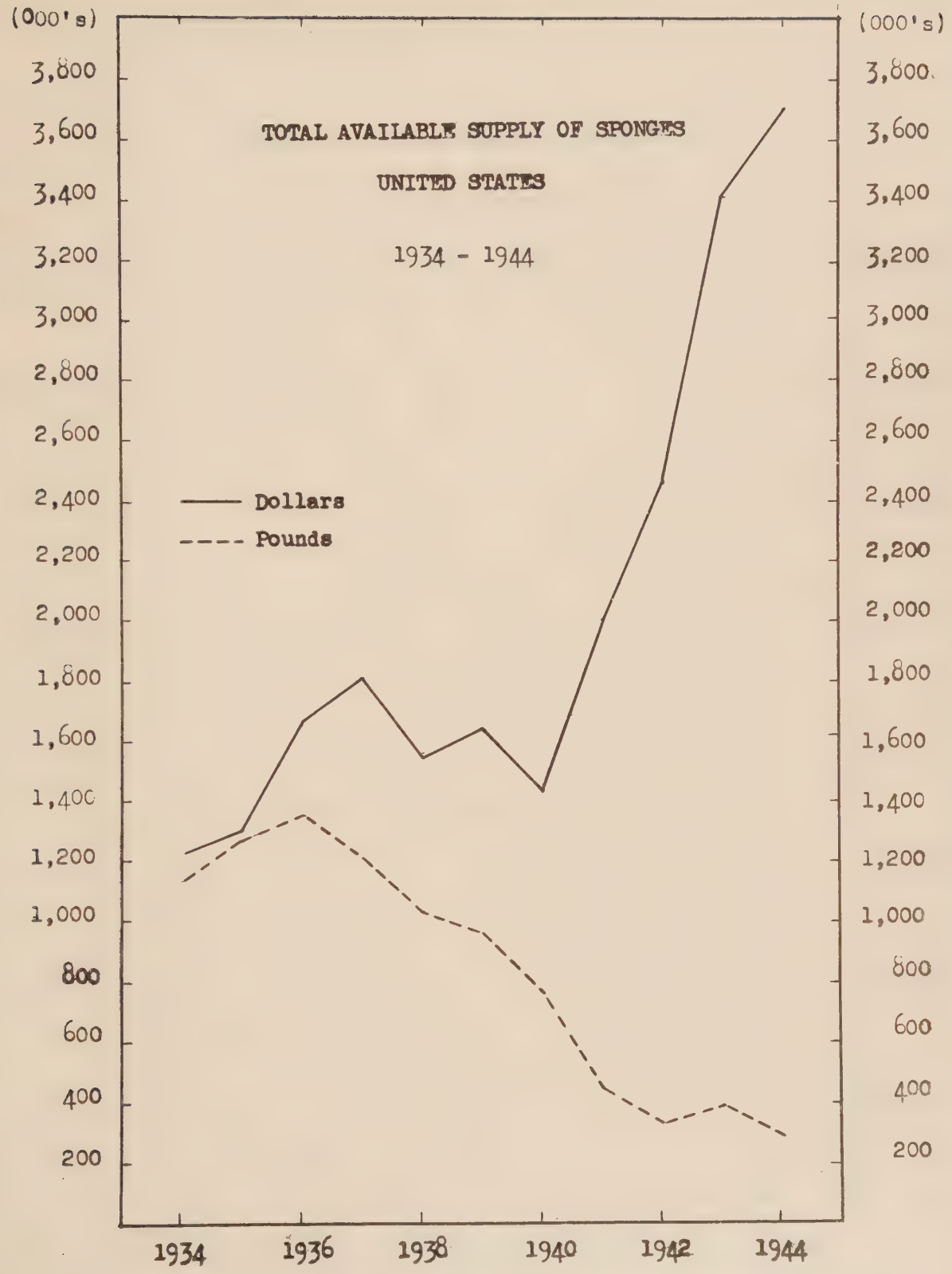

Source: Sponge Production and International Sponge Trade of the United States.

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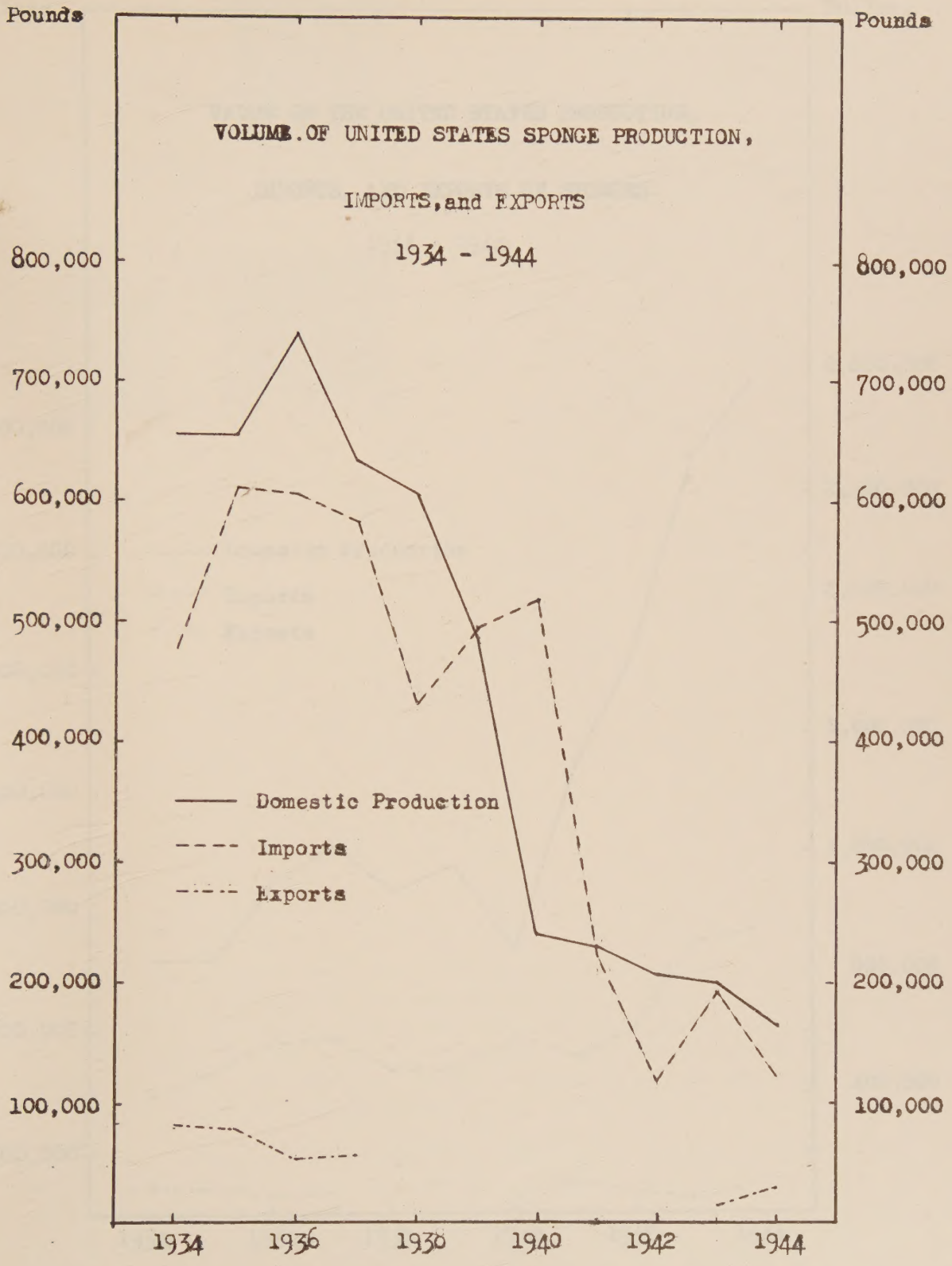
F.W.S. Fig. 2



Source: Sponge Production and International Sponge Trade of the United States

F.W.S. Fig. 3

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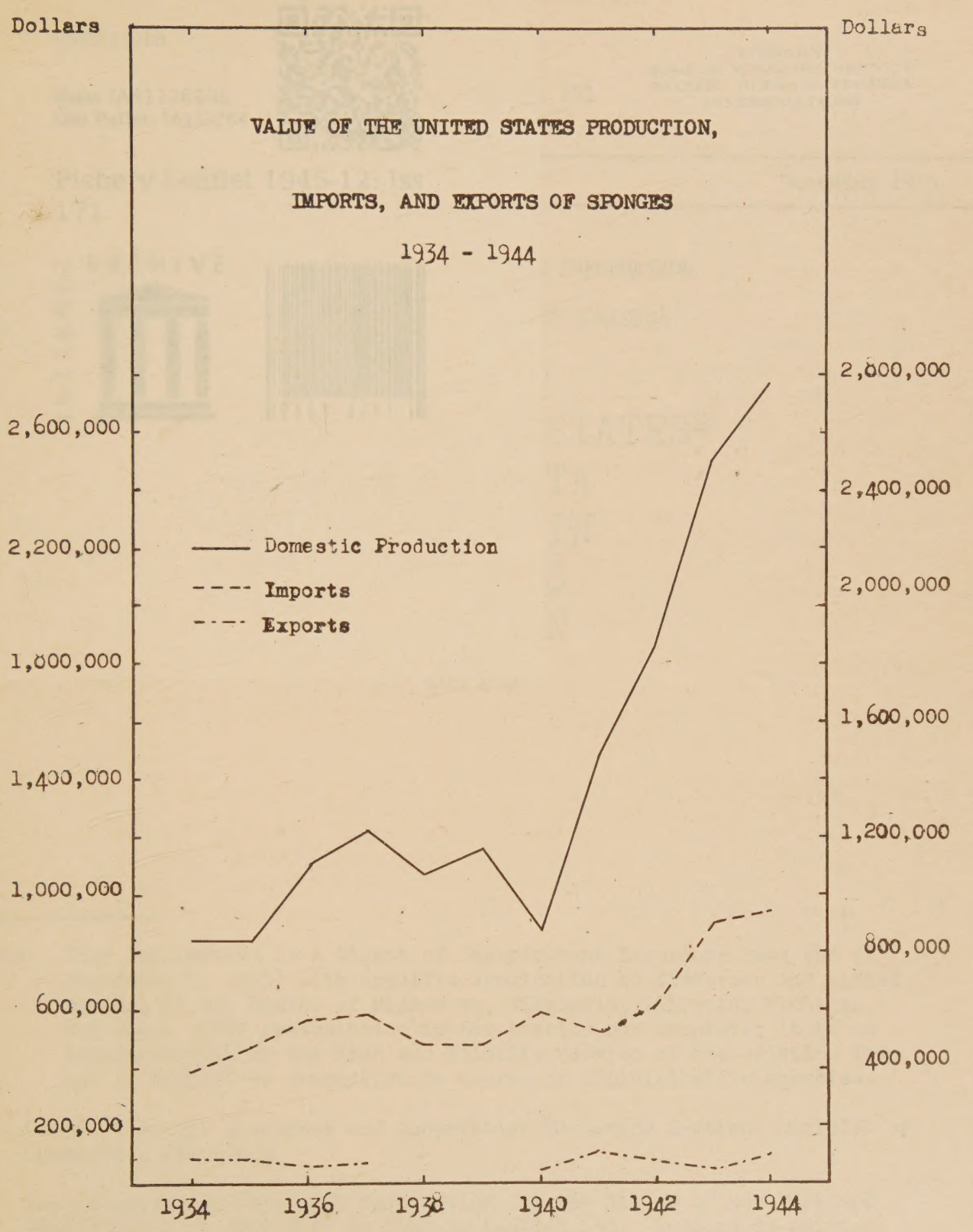

Source: Sponge Production and International Trade of the United States

F.W.S. Fig. 4

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